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Attacks on Civilization.

IT is a matter of importance for the American people to learn as soon as possible that under the conditions of our national life, nothing in our civilization will keep very long. It must be perpetually reproduced, must in some way always be the fresh expression of the life and thought of the time, or it will decay and vanish. Whatever may be true of other countries, with us nothing valuable is ever secure. This is not always understood or remembered, and when any good thing is gained our people are apt to think that continued interest in that particular matter is unnecessary. This baseless notion of security invites attack, and most of our battles have to be fought over again under somewhat different conditions.

It is but a few years since the land about the Falls of Niagara was withdrawn once for all and forever from the realm of money-making uses, and dedicated to entirely different objects. The people of the state, after a most deliberate and thorough discussion of the matter, decreed that here there should be an opportunity for the tranquil, undisturbed exercise and delight of the higher faculties of human nature. The establishment of the State Reservation was a distinct advance in civilization. It cost years of strenuous effort, and a large amount of money. When it was accomplished the friends of human progress rejoiced. But while the quiet festival with which this achievement was celebrated was in progress a new attack on Niagara was planned. Some men could not bear to see so much power going to waste, and they have ever since been busy with imaginative schemes for illuminating the country or propelling its machinery by utilizing the great waterfall.

Niagara is owned by the state of New York, having been solemnly set apart forever from private ownership for the express purpose of preserving its unparalleled scenery. Is it therefore secure? Not at all. An account of the movement for the redemption of Niagara, written in 1885, observes that "great wisdom and decision will always be required adequately to protect the Niagara Reservation from the encroachments of greed and vulgarity. In the nature of things it can never be safe for the people of intelligence, good taste and public spirit, of the state of New York, or of the country at large, to withdraw all oversight and interest from the management of the Reservation and the care of the scenery about the Falls." Under existing conditions—that is, with our present degree of development—there is no possible arrangement by which Niagara can be made secure. It will be the object of perpetual attack, and will require constant effort for its defense, until the mass and average of the people of our country become sufficiently enlightened to understand the true value of the place and its scenery, and to prize it for the "vital feelings of delight" which it inspires. The men who "saved Niagara" a few years ago will not live to see that time. If the people of this state, and of the country, intend and expect to keep the State Reservation at the Falls free and unspoiled, they must be always on guard. No electric light or power plant of any kind can be established or operated at the Falls without impairing the value of the scenery, and fatally interfering with the objects for which the Reservation exists.

The account already quoted (from the *New Princeton Review*), declared that the movement to save Niagara is of peculiar interest, because it was the first effort made in this country on so large a scale to use the machinery of government for an object of this kind—that is, for a purpose belonging so entirely to the realm of elevated sentiment and noble spiritual emotion. No sordid element modified or degraded the pure ideal which the laborers in this movement set before them from the beginning. No person made any money out of it. There was no stain or shadow of jobbery from the inception to the final accomplishment of the enterprise. Here was a great natural possession of unparalleled beauty, with peculiar power to inspire wholesome and elevated emotions, to calm the fevered unrest of our crowded, hurried modern life; to delight and reinvigorate all who feel that "the world is too much with us, late and soon," and to minister to the sanity and happiness of millions of toiling men and women through all coming time. It was certain to be speedily destroyed and its priceless loveliness extinguished in cureless ruin, unless the state intervened to save it. The great state of New York has never acted more wisely, or more in accord with the highest civilization of the age, than when she devoted a million and a half from the public treasury to make the region about the Falls of Niagara free to her people and to mankind forever. Such objects will always be easier of accomplishment in America because of the precedent thus established.

The truth that the best things in our civilization are subject to constant attack appears also in the difficulty of maintaining parks and open spaces in our large cities. One of the reasons offered in favor of confiscating Central Park for the World's Fair is that a great building, or more than one, erected for the fair, may be left standing permanently, to add to the attractions of the park. To those who understand the true value and uses of a park this would be a reason on the other side. A pastoral park is not a place for buildings, and the minimum of artificial constructions should be the rule in all places of the kind. It was wrong to take a part of City Hall Park in this city for the Post Office, and it is entirely natural that the result of this uncivilized proceeding should be one of the ugliest buildings, for its size and cost, in our whole country. If we had been sufficiently developed to produce a beautiful and noble building we should never have thought of putting it in the park. It would be far better for the city if there were no buildings in this park except the old City Hall, which is the only one possessed of any architectural merit.

Perhaps the necessity of perpetual struggle to maintain what we have, is not so much to be regretted as many people think. The constant wariness and effort thus required are the condition of all farther advance. If it were possible, which it never is, or can be, to make everything safe, we should probably lie down in peace and rot. Luxury and inaction would bring on atrophy of the higher qualities of the national character, and unless they are maintained

in vigorous life, civilization itself would decay. Without these higher moral qualities a nation would not fight even for freedom, though it might try to buy it. The need of serious thought and hard work is not to be altogether regretted, or regarded as a discouraging condition; and even such a manifestation as the raid on Central Park may have its use in making this need still more apparent and urgent. The necessity of struggle is abiding, normal and stimulating.

Chatsworth.

IN the heart of the beautiful Derbyshire country lie, twelve miles from one another, two of the most famous country homes of England—Haddon Hall, one of the residences of the Duke of Rutland, and Chatsworth, the seat of the Duke of Devonshire. At Haddon Hall the house itself is the chief object of interest, being a most picturesque and beautiful structure, no part of which is of later date than the fifteenth century; the once magnificent park was plowed up for cultivation some seventy years ago, the chief residence of the duke being now Belvoir Castle. At Chatsworth, however, the grounds are even more magnificent and famous than the house. The estate is said to have been granted by William the Conqueror to his natural son, William Peveril, and is familiar to readers of Scott's "Peveril of the Peak." In the reign of Elizabeth it was bought by Sir W. Cavendish, who commenced a residence that was finished by his widow, the famous Countess of Shrewsbury. But this house was swept away in the first years of the eighteenth century to make room for an imposing structure to which wide-spreading wings were added by the sixth Duke of Devonshire, who made its grounds to rank among the wonders of the world.*

When the first of American landscape-gardeners, A. J. Downing, visited England in 1856, this duke and his head gardener, Joseph Paxton, gave him hospitable entertainment, and, from a long letter which he wrote home to the *Horticulturist*, we shall take many of the following descriptive passages:†

The house—palace would be a better word—stands in a valley, and therefore makes a less imposing effect as the visitor approaches than do some other English homes of perhaps smaller architectural pretensions. But if the site is thus disadvantageous in one way, it conduces vastly in other ways to the beauty of the domain. The surrounding hills, of picturesque outline and from 300 to 400 feet in height, form from every point of view a beautiful background and setting for the park; and, their sides being filled with prolific springs, it has been possible to utilize water in the pleasure-grounds to a far greater extent than in any other English estate.

The park measures about nine miles in circumference, and its surface is beautifully diversified with hill and dale. The visitor usually enters it by the Edensor Gate, which takes its name from a little village near by, which was wholly rebuilt by the sixth duke, and, with its thirty or forty charming cottages, is, says Downing, "precisely what everybody imagines the possibility of doing and what no one but a king or a subject with a princely fortune and a taste not always born with princes, could do." Each cottage has its garden and stands among beautiful trees, and a wide village green, a village play-ground, school, drying-ground and fountain serve the common comfort as well as delight the eye by their tasteful disposition. From the village to the house "is about two miles through a park, which is a broad valley, say a couple of miles wide by half a dozen long . . . backed by wooded hills and sylvan slopes . . . with a lovely English river, the Derwent, running like a silver cord . . . and grouped with noble drooping Limes, Oaks and Elms that are scattered over its broad surface. . . . After driving about a mile the palace bursts upon your view, the broad valley-park spread out below and before it, the richly-wooded hills rising behind it, the superb Italian gardens lying around it . . . the whole, a palace of Arcadia." The house forms a great quadrangle, in the centre of which is a magnificent fountain. The Italian gardens are a "series of broad terraces on two or three levels, which surround the palace, and which, containing half a dozen acres or more of highly-dressed garden scenery, separate the pleasure-grounds and the house from the more sylvan and rural park. . . . Of course, the Italian gardens are laid out in that symmetrical style which best accords with a grand mass of architecture, and are decorated with fine vases, statues and fountains. . . . A surface of real dark green velvet of a dozen acres would scarcely soothe the eye more by its look of softness and smoothness than the turf in the Italian gardens at Chatsworth. . . . But the crowning glory of Chatsworth is its fountains. . . ." From the gardens, which extend along the whole house-front of 800 feet, one sees the "carpet of velvet divided by broad alleys enriched by masses of the richest flowers and enlivened by fountains of various forms." And further away is a "mirror-like lake, set in turf and overhung by a noble avenue of drooping Lime-trees, beyond which you catch a vista of the distant hills. . . . Out of this limpid sheet springs up a fountain so high that as you look upward and fairly hold your breath with astonishment, you almost expect it, with its next leap, to reach the sky; and yet, with all this vast power and volume, it is so light and airy and beautiful . . . that you will not be convinced that it is not a production of nature like Niagara. This is the 'Emperor fountain,' the highest in the world—about the height, I should say, of Trinity Church steeple.‡ It is only suffered to play on calm days, as the weight of the falling water, if blown aside by a high wind, would seriously injure the pleasure-grounds. . . . As the eye turns to the left the wooded hill which forms the rich forest background to this scene seems to have run mad with cataracts." Towards the base of the hill stands a circular water temple, from which the water rushes out with tremendous force to fall at the back of the gardens down a long flight of very broad marble steps, giving the effect of a waterfall more than a hundred feet high."

Beyond the terraces and flower gardens and more formal lawns "the path becomes wild, and, after a turn, you enter upon a scene the very opposite to all that I have been describing. You take it for a rocky wilderness. The rocks are of vast size, and, indeed, of all sizes, with thickets of Rhododendrons and Azaleas growing among them, Ivy and other vines climbing over them, and foot-paths winding through them." Here, again, are many waterfalls and streams. "Nothing can well look wilder or more natural than this spot; and yet this . . . rock-garden of six acres has all been created. Every one of these rocks has been brought here—some of them from two or three miles away. It is just as wild a scene as one finds on the skirts of some wooded limestone ridge in America . . . yet all traces of art are obliterated. You wish to go onward. No, that you see is impossible; a huge rock weighing fifty or sixty tons exactly stops up the path. Your companion smiles, and with a single touch of his hand the rock turns slowly on its centre and the path is unobstructed. There is no noise and nothing visible to explain the mystery. . . . One of the greatest beauties of Chatsworth lies in the diversity of surface, which . . . offers excellent opportunities for the production of a succession of scenes now highly ornate and artistic . . . now romantic and picturesque."

Closely connected with the name and fame of Sir Joseph Paxton is the magnificent conservatory which stands at about five minutes' walk from the house in the centre of a level forest glade surrounded by fine old trees. It is 300 feet in length and 145 in width, and covers about an acre of ground; and directly through it runs the wide carriage-drive. "All the riches of the tropics," says Downing, "are grown here, planted in the soil as if in their native climate. . . . The surface is not entirely level, but there are rocky hills and steep walks winding over them; and lofty as the roof is (seventy feet), some of the Palms of South America have already nearly reached the glass." A large pond forms a feature of this conservatory, and a gallery is carried all around it, whence the best view of its tropical splendors can be obtained. One notable plant in Downing's time was an *Amherstia nobilis*, the only specimen in Europe, which had been procured in Burmah by a collector specially sent by the Duke. Paxton's success in building this conservatory, which he covered not with flat panes of glass, but according to what is called the "ridge and furrow system," induced him to send in a competitive design when the government was contemplating the erection of a great structure for the first "World's Fair" in 1851, and so great seemed the practical utility of his novel scheme that his services were chosen in preference to those of any architect. The triumph he achieved in his exhibition-building is a matter of history, and no one thought him too highly honored by that "handle to his name," which had never before been bestowed upon a man in his position. The building itself, transferred to Sydenham, is the famous "Crystal Palace" of to-day.

But in the grounds of Chatsworth, as well as in the conservatory, the sixth duke revealed his passion for horticulture and

* Mary Queen of Scots was confined for thirteen years in the old house at Chatsworth, and here the philosopher Hobbes passed many of his days.

† The *Horticulturist*, vol. v., p. 217, November, 1850. See also vol. i., p. 297, where another pen likewise describes the wonders of Chatsworth.

‡ The height of this fountain is 267 feet. The next highest in the world, at Wilhelmshohe near Cassel, is 190 feet, while the loftiest jet at Versailles rises only to a height of ninety feet.

his willingness to spend vast sums of money in its gratification. The arboretum, as Downing saw it, was about a mile in length, and its trees—forming a complete collection of all that were hardy in that climate—were "neither set in formal lines nor grouped in a single scene, but scattered along a picturesque drive with space enough for each to develop its natural habit of growth." Many exotic trees, shrubs and flowers, which are now more or less well known, were first introduced to cultivation at Chatsworth, and the story of its plantations would make an important chapter in the history of horticultural progress in Europe.

On the opposite side of the house from the conservatory and arboretum lie the immense kitchen and forcing gardens. Here the most famous item that Downing noted was a Peach-tree "occupying a glass-house by itself and extending over a trellis, say a hundred feet long," which, Mr. Paxton stated, had borne in the current season 8,727 peaches, of which 926 had been allowed to come to maturity. To show that Paxton knew how to save money as well as to spend it, the duke remarked that the cost of growing his Pineapples had been reduced two-thirds since this great gardener had taken them in charge, twelve years before.

Of course, we have only hinted at a few of the many beauties and marvels of this wonderful place, but enough has been said to explain Downing's enthusiasm when he wrote that, from a tower on a hill-top a mile away from the house, one saw "such a picture of palace and pleasure-ground, park and forest scenery as can be found, perhaps, nowhere else in the circle of the planet." It is interesting, too, to read his defense of the duke against charges of selfish extravagance. The "refined taste" shown at Chatsworth seemed largely to excuse its magnificence, while "when one sees how many persons are constantly employed in the various works of improvement—and how cheerfully the whole is thrown open to the study and enjoyment of thousands and tens of thousands annually, one cannot but concede a liberal share of admiration and thanks to a nobleman who might follow the example of many others and make his home a closed castle.* . . . One has only to visit Windsor and Buckingham Palace after Chatsworth to see the difference between a noble and pure taste and a royal want of it. The one may serve to educate and reform the world. The utmost that the other can do is to dazzle and astonish those who cannot recognize real beauty or excellence in art."

To create and maintain a place like Chatsworth needed the conjunction of two exceptional men like the sixth Duke of Devonshire and Joseph Paxton. It was not to be expected that their successors would equal them in enthusiasm, knowledge and taste. Consequently, the Chatsworth of to-day is not quite the place that Downing saw. The great features remain, of course—a noble palace in a noble park, with gardens perhaps too artificial for the taste of the present time, but it is no longer a great centre of horticultural activity and progress.

Asters and Golden-rods.

THE earliest Aster here is *A. cordifolius*, the Heart-leaved Aster in our language. Here are great beds of its large leaves, six inches or more long, covering the ground completely, just here with very few flower-stalks.

Gather it within the dense shade of the copse or forest and compare it with some grown in the open and you may think you have two species. The first has a slender stem, as green as its leaves, and pure white rays; in the sun its stout stalk is red or purple, with a broad corymb of blue or rosy purple flowers, whose disk florets are much more highly colored also; it seems to gain its full stature only in sunny or partly sunny places. You find great masses of its flowers along every wood-side through August and September, but the beds of great leaves are often absent, the plants having only cauline leaves. It is a handsome plant when well grown, and if it has at times a weedy look, it is because it attempts to grow everywhere, whether it can or not.

Almost as early is the Spreading Aster, *A. patens*, with its large, light blue flowers, more perfect in form than the blossoms of *A. cordifolius*. It may be known by its stiff and angular branches, which spread widely, and its narrow leaves, that clasp the stem; though this last habit is not peculiar to this species. It grows beside the first named, but is less abundant, lasting well into September.

The many-flowered Aster, *A. multiflorus*, a large, stout stemmed species, with pure white rays and red or brown disks, is found here and there, but is hardly common. Its flowers are pretty, but are much concealed by the foliage; they do not make themselves felt from such a distance as those of *A. Novæ Angliæ* or *A. miser* do.

A larger and more showy species blooms about the last of August, the Red-stalked Aster, *A. puniceus*. It is four feet high, with long, narrow, bright green leaves, red stems, and long and numerous rays of a rich blue or violet, and brown disk florets. It grows in swamps and beside streams. It catches the eye from afar with its strong growth and bright flowers. One may overlook the others, but this one advertises the fact that Asters are in bloom and that autumn is at hand. The first of September brings the best of all, the New England Aster, *A. Novæ Angliæ*. Its growth started early last spring; it has been patiently building up its strong purple stems, crowded with its neat and abundant foliage, ever since. They are now four or six feet high, as the plants come into bloom. Its almost countless flowers are an inch and a half in diameter, with rays of the richest violet and brown disks which suggest the plush of a bumblebee's jacket. They have a strong fragrance, and are the only scented Asters so far as I know. They smell just like the Witch Hazel's flowers, which you may find before the Asters are gone. Could we see the particles of odor given forth by these two widely differing plants, would they have the same form and size and color? Heat and drought cut short the bloom of the New England Aster—and perhaps that of all other Asters growing in dry soils, for cool rains and gray skies make it glow best and longest. I almost imagine its colors are brighter on hard, poor soil, an effect due, perhaps, to the background of dull brown earth and fading herbage found in such places.

The Acuminate Wood-Aster, *A. acuminatus*, is found in shady woods early in September—a noticeable plant, a foot high, with a loose panicle of large, whitish heads with a spreading cluster of leaves just below it; the lower stem is naked. Soon comes the starved Aster, *A. miser*, one of the most floriferous of plants, in spite of its name; its flowers may be small, but their multitude makes up for that. They are pink, white, purple and blue on the same plant sometimes, due, perhaps, to their varying age, like the blue and paler flowers of *A. patens*. The hard, dry road-sides owe much to the slender growing starved Aster. Frost is nothing to it; it gathers fresh glory from being positively the latest flower. You may find it bending with its weight of flowers in the midst of deep drifts of fallen leaves, while *A. cordifolius* beside it is heavy with its ripened seed. A little spray of its pink and blue flowers, as fresh and bright as though it were the first blossom of spring, is almost more to you than the great purple plumes of the New England Aster were in their time, now so long past.

The Golden-rod contemporary of *Aster cordifolius* is the smooth Golden-rod, *S. serotina*, a fine species, three feet high, with purple stems, smooth leaves, and a bright inflorescence. Tramping through pastures and woods at this time, you see Golden-rods in bloom in the distance which you imagine may belong to other species, but as you come near you see the red stem and smooth leaves of *S. serotina*. *S. altissima* and *S. Canadensis*, upon which the autumn depends for most of its golden effects in these parts, are in bud, and biding their time, which comes in mid-August. They grow a foot high here and eight feet there; erect or drooping, and their variations are endless. Their mission is to light up every field margin, lane and wood-side in the land, and for this none of their forms come amiss.

We now come to a section of the genus that the popular eye hardly holds as Golden-rods at all; no artist puts them into his picture of autumn scenery; they are small, shy, woodland species, doing little to decorate the country. *S. latifolia*, with broad leaves and a golden spike; *S. bicolor*, of slender, erect habit, the only white Solidago, and even this has yellow stamens, whence its name; and the *S. cæsia*, a lovely plant in woods and shades. Most Golden-rod leaves and stems are rough to the touch and somewhat coarse looking, but no smoother plant grows than the blue stemmed Golden-rod. *S. cæsia*, a stalk of slenderest growth, having long, narrow leaves and a bunch of flowers at the insertion of each leaf; often gracefully bending like a long, golden garland. Then there is the grass-leaved Golden-rod, *S. lanceolata*, remarkable for its flat topped inflorescence; but no one locality can boast the seventy or more species of these two genera. That purple ridge over there, where they have Huckleberries and rattlesnakes, has a different set, and though the above list contains all my own, and will doubtless hold over large areas of Beech and Maple country in western New York, it will need large revision in the region of Chestnut, Oak and Pine anywhere.

Canaseraga, N. Y. *E. S. Gilbert.*

*It is recorded that as many as 80,000 persons had been permitted to inspect not only the grounds but the house also during a single year before Downing's time.

New or Little Known Plants.

Spiræa Millefolium.

THIS remarkable plant, figured on page 509, was discovered in the valley of the Bill Williams Fork of the Colorado River of the West, in the Territory of Arizona, in the autumn of 1853, by Dr. J. M. Bigelow, the naturalist of Lieutenant Whipples' explorations along the thirty-fifth parallel for a railroad to the Pacific. It is now known to occur very sparingly at high elevations from Wyoming to northern California and along some of the mountain ranges of the Great Basin, and on the eastern slopes of the Sierra Nevada to the neighborhood of Owen's Lake, in south-eastern California, as well as in northern Arizona.

*Spiræa Millefolium** is a glandular-pubescent, spreading shrub with a loose habit, growing sometimes to a height of five or six feet. It has stout branches covered with thin reddish bark, separating readily into thin deciduous scales and narrowly lanceolate leaves, which resemble those of Chamæbatia, fascicled or sometimes scattered near the extremities of the branches. They are pale gray-green, one to three inches long, twice pinnate, with numerous pinnæ and minute oblong-obtuse leaflets. The flowers are produced in slender terminal panicles six or eight inches long. The calyx is top-shaped, with acute erect divisions rather longer than the tubes, but shorter than the orbicular-obovate white petals, which are about an eighth of an inch long. The stamens are included. The five carpels are nearly pubescent or glabrous at maturity, and two-valved to the base, with seeds the twelfth of an inch long, somewhat attenuated at the two extremities.

I found this plant growing in considerable abundance in the autumn of 1878 on the dry and arid foot-hills of the Monitor Range, above the elevated Fish Spring Valley, south of Eureka, in central Nevada; and was fortunate in securing a quantity of the seeds, which germinated in the Arboretum, where this plant has quite unexpectedly proved entirely hardy, and has produced flowers and fruit for several years. It may now, I believe, be seen also in several European collections. The whole plant, like many others of the Great Basin and other arid western regions, is strongly impregnated with the odor of creosote. *Spiræa Millefolium* will interest probably the botanist more than it will the cultivator of purely ornamental plants, although the foliage is not without beauty.

Maximowicz proposes the genus Chamæbatiaria† for this plant, adopting the sectional name in Spiræa, first used by Professor J. C. Porter—a view which will not probably be adopted by all American botanists. *C. S. S.*

Plant Notes.

Vaccinium Vitis-Idæa.

AMONG the many varieties of edible berries that abound throughout Canada, none occupy a higher place in the economy of nature than the northern Cranberry, better known in the south as the Cowberry. Deemed of no value in the warmer parts of Canada, and pronounced by Gray to be "acrid, and rather bitter, mealy, barely edible," it seems, when in its own home in the cold, rocky woods of the north, or along the shores of Hudson Bay and the Arctic Ocean, to derive size and flavor from the very conditions that dwarf and kill its less hardy competitors. For there it is not "acrid and rather bitter," but simply acid, and far from being "mealy." It is firm and juicy, and, when cooked, is pronounced by those who eat it to be equal, if not superior, in flavor to the fruit of the true Cranberry, *Vaccinium macrocarpon*. Along the Gaspé coast and the north shore of the Gulf of St. Lawrence, the fishermen's families gather this fruit in large quantities for their own use or for sale, calling it the "Low bush Cranberry;" and, throughout the whole of northern Canada, hunters and trappers, as well as the native Indians, have frequently to depend upon it for food when game and fish are scarce.

But it is not to man that this useful berry is of the greatest service. It forms the most important, and, in some places, with the fruit of *Empetrum nigrum*, the sole food of the larger migratory birds, as they return from the south in early spring; and the islands in some of the large lakes of the north and in Hudson Bay are at times covered with geese of several species that have stopped to rest and feed. It is in the spring, immediately after the snow disappears, that this berry seems to be most sought after by birds and animals, partly, perhaps, because it is then soft and sweet, but principally, no doubt, on account of the scarcity of other food, although grouse, partridge and ptarmigan eat it at all seasons, even when only half ripe. In the spring, in suitable localities in the wooded country, it forms the favorite food of the black bear, and on the islands in Hudson Bay and along the Arctic coasts the polar bear spends much of his time in tearing up the low evergreen plants, in order to get at the fruit more easily; for it is on the under side, and almost touching the earth, that the berries are to be found in the greatest numbers. Immense patches of ground covered with the dead plants may often be found, telling where bruin has been at work. All summer long the last season's fruit may be found mixed with the flowers or with the green berries, and is then eaten by many birds in preference to anything else.

Ottawa. *J. M. Macoun.*

Holiday Notes in Southern France and Northern Italy.—II.

MUCH of interest to the gardener is to be seen in and about Turin, the principal city of Piedmont and once capital of Italy. There are many long, broad, straight streets planted with various species of trees, several gardens and pleasant squares. The most noteworthy features observed by us I shall try to condense into the present paper; many places were, however, visited which lack of space prevents me from mentioning. One of the favorite promenades of the Turin people is the *Giardino Valentino*, on the left bank of the Po; this is easily reached by tram, and is well worth a visit. The royal chateau, "Il Valentino," a turreted building of the seventeenth century (now used as an engineering college), gives its name to the garden. The ground seems to have been well laid out, and is not broken up by paltry beds, as is so often the case in similar places. Groups of Planes, Pines, etc., and a few fine single specimens of Arbor-vitæ, Red Cedar, etc., stand out well on the broad stretch of grass, which, however, had a coarse and neglected look in comparison with a well kept English lawn. Rock-work, apparently constructed on false principles, bordered the steps and slopes leading from one level to another, but no plants relieved the bare, even forbidding, aspect of what surely might have been made a pleasing feature.

The Botanic Garden is, like so many continental establishments of a similar character, not open to the public, but visitors desirous of seeing it can obtain admission on application to the doorkeeper. Many very fine trees exist in the by no means extensive grounds, and, among them, the following struck us most: *Zelkowa crenata* (grafted on Elm), planted quite small forty-one years ago by the present curator, and now a huge tree four feet through at the base; this is the biggest specimen I have yet seen of this interesting Caucasian tree. *Fagus ferruginea* seems to be quite at home in Turin; in Britain, as far as my experience goes, it makes hardly any headway at all, and is inferior in every respect to the European Beech. The Kentucky Coffee (*Gymnocladus dioicus*) was represented by a splendid tree, laden with pods. The most remarkable of the other American trees were a White Oak (*Quercus alba*), about seventy feet high, with a trunk more than three feet through, and a Bur Oak (*Q. macrocarpa*), about the same height, with a trunk two feet in diameter; in Britain and in other countries of northern Europe none of the American White Oaks thrive; on the other hand, the Red Oak (*Q. rubra*) and the Scarlet Oak (*Q. coccinea*) make huge trees, and grow much more rapidly than our European species. A tree of the Bitter Nut (*Carya amara*), with a trunk two feet through, had attained a height of about seventy feet. The first Locust (*Robinia Pseudacacia*) introduced into Piedmont is also to be seen in the Turin Botanic Garden; it is still a fine, vigorous tree. No one familiar with the Sweet Gum of the Levant (*Liquidambar Orientalis*) in British gardens only can form any idea of the beauty of the species under conditions suitable to its development; at Turin it is a graceful tree, from forty to fifty feet high, and it flowers and ripens fruit, though not every year; in England it only makes a dense dwarf bush—specimens at Kew do not seem to have increased in size to any appreciable extent during the last fifteen years or more. *Fortunea Sinensis*, an interesting ally of the Hickories and Walnuts,

*Spiræa Millefolium, Torrey, *Pacific R. R. Rep.*, iv., 83, *t.* 5.—Brewer and Watson, *Bot. California*, i., 179.

†"Adnotationes de Spiræaceis," in *Act. Hort. Petro*, vi., 225.

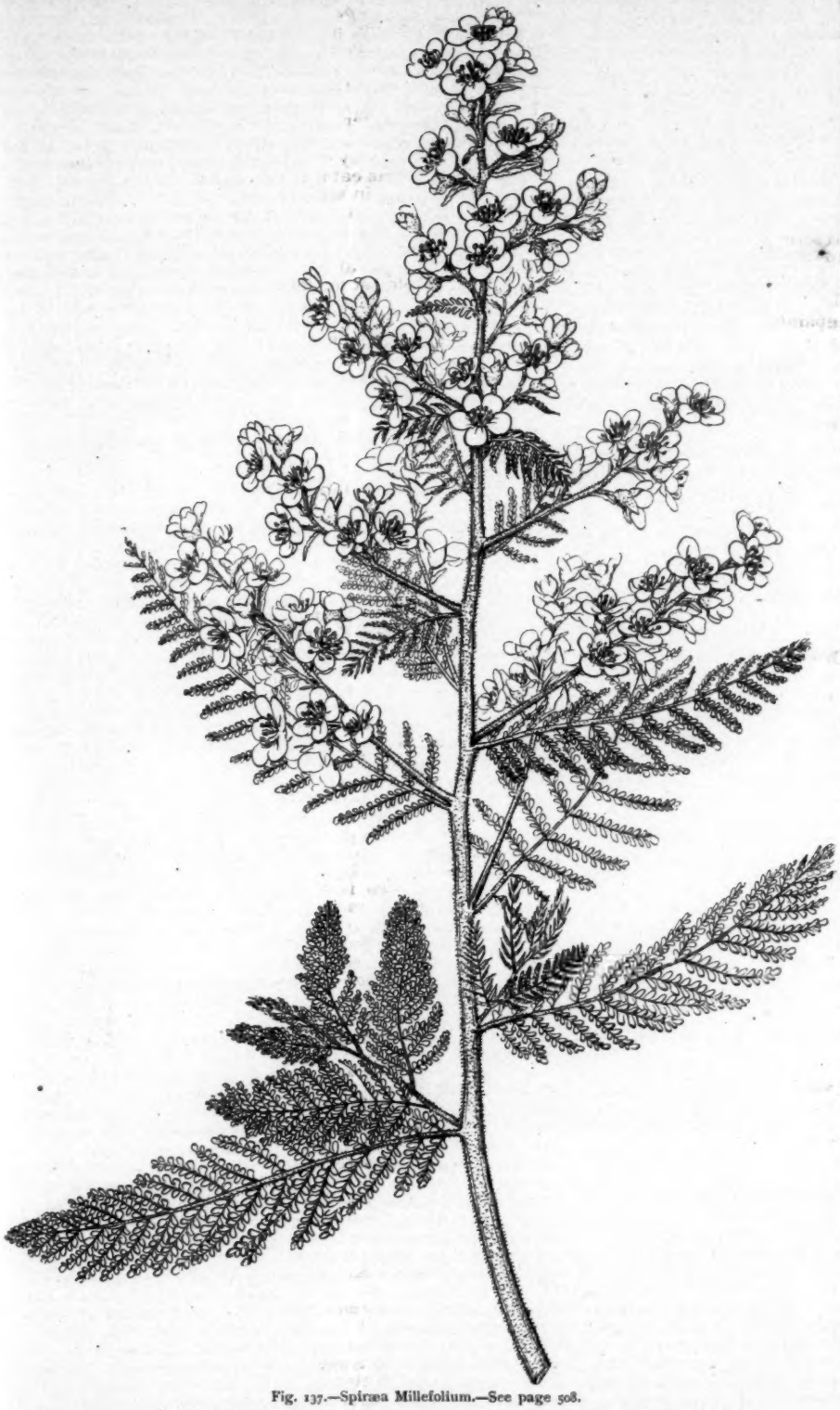


Fig. 137.—Spiræa Millefolium.—See page 508.

ripens seeds freely under the sunny Italian sky; the Turin plant was a fine, handsome bush some nine feet high. This, as well as the Japanese *Stachyurus præcox*, which flowers and fruits freely in company with the above-mentioned trees, only succeeds under exceptionally favorable conditions in England. Another member of the Walnut family, *Pterocarya Caucasica*, sixty feet high, with a trunk three feet in diameter, was laden with its long pendulous spikes of small winged nuts. A big Maidenhair tree (*Ginkgo biloba*), seventy feet high, and an *Idesia polycarpa*, thirty feet high, were among the finest of the Japanese trees. The Himalayan Spruce (*Picea Morinda*) was represented by a small group of fine pyramidal specimens from fifty to sixty feet high. *Sterculia platanifolia*, a species which grows so rapidly and produces such a fine effect in northern France, is here a round-headed pollard, the long, thick shoots being killed back more or less every winter.

Amongst other features of special interest noted in the open air were a Jujube (*Zizyphus jujuba*), laden with fruit, and close to it a fine *Aristolochia ornithocephala*, flowering abundantly. The latter, however, will be housed before winter sets in. A nice lot of terrestrial Orchids (European species) were growing in pots, not plunged, but merely standing on gravel in partial shade. A dense covering of the commonly cultivated *Selaginella Kraussiana* made an excellent substitute for the grasses, etc., amongst which they grow in a wild state. This plan is well worthy of a trial, as very few orchid growers, professional or amateur, succeed with many of these peculiarly interesting plants, numbers of which are as beautiful in the color of their flowers as these are quaint and strange in form. In England we do not, as a rule, get sufficient sunshine for the Wild Potato-vine or Man-of-the-Earth (*Ipomœa pandurata*). In Turin, however, it was a splendid object, clothing a stump fifteen feet high, and literally covering it with large, beautiful, white, purple-throated flowers. *I. Quamoclit*, too, generally grown as a warm greenhouse plant with us, was a fine sight in the open, close to the species just named, the finely cut, slender leaves and profusion of bright scarlet flowers affording a combination as charming as it was novel to us.

As far as in-door cultivation is concerned English gardeners have not much to learn from Italian practice. The houses were heated by steam, but the plants, excepting some in a large conservatory, call for no remark. The climbers in the last-named structure were exceedingly fine, and the large, twisted stems of the Bignonias helped one to realize travelers' descriptions of the vines in a tropical forest. *Bignonia Cherere* covers a large space of back wall, and hangs in festoons from the roof. Only a few of the handsome flowers were to be seen at the time of our visit; but when the plant is in full blossom it is, so the Curator informed us, one dazzling mass of deep red. *Tecoma jasminoides*, too, flowers equally freely and attains dimensions as large as those of the plant previously mentioned. *Dioclea glycinoides*, an Australian climber, was very showy with its long racemes of scarlet,

pea-shaped flowers. A large bush of *Grevillea asplenifolia* (recently figured in the *Botanical Magazine*) was here some fifteen feet high, and bore the name of *G. longifolia*. Close to this was a bush of the Japanese *Osmanthus Aquifolium*, which, on enquiring the reason for its cultivation under glass, we learned, had repeatedly failed in the open at Turin, the winters proving too much for it.

Perhaps the prettiest of the squares is the Piazza dello Statuto, with its huge allegorical monument, commemorating the completion of the Mont Cenis tunnel. As the guide-books say, "the genius of science is seen soaring above a chaotic pile of granite rocks, on which lie the stupefied and conquered giants of the mountain." The mass, at one end of a pretty fenced-in garden, is surrounded by water, bordered with a broad Ivy band, through which, here and there, emerge Yuccas. At the back are Bamboos. There is an excellent piece of turf, with groups of fine Lagerstrœmias (in full flower at the time of our visit), *Hydrangea quercifolia*, Judas Tree (*Cercis Siliquastrum*), etc. A good bed of Colocasia and green and red-leaved Cannas was pleasing, and did not look at all out of place.

The Plane, the same as that mentioned in my last paper, is in Turin, undoubtedly, far and away the best street-tree. In some of the broadest streets the trunks of the trees were protected by a fenced-in border, about four or five feet wide, and a hedge of the Chinese *Spiræa Cantonensis* occupied the distances between them. In other places Forsythias were grown under similar conditions, and in others again, Noisette and China Roses. The constant waterings these shrubs require is, no doubt, of immense advantage to the Planes in that hot and thirsty soil. Oak avenues obtained in some parts of the city, and Elms elsewhere, but the oak-stems were riddled by the larvæ of the goat moth, or some equally objectionable enemy to trees, and the Elms were badly attacked by various fungi. The Plane, however, everywhere seemed clear from both fungoid and insect attacks.

The fruits of the Azarole (*Cratægus Azarolus*), about the size of a small Medlar, were offered for sale in the markets. This species is hardy enough with us, but it flowers sparingly and rarely ripens its fruit in the comparatively sunless climate of Britain.

To the south of Turin is the village of Moncalieri, picturesquely situated on a ridge of hills, the highest spot being crowned by the royal château in which Victor Emmanuel died in 1823. From this point the snowy summits of the Alps are visible on the left, and a good view of the Turin hills is obtained. Large Spruces, Junipers, Red Cedars, Weymouth and other Pines adorn the grounds of the château. The wood behind is simply Oak and other indigenous trees. A dazzling mass of blue along the top of a wall in the Via Petrarca immediately attracted our attention. It turned out to be *Ceratostigma plumbaginoides* (better known under its old, but incorrect, name of *Plumbago Larpentæ*). This handsome Chinese perennial evidently requires a sunny spot, a rather dry situation and soil—perhaps rather poor than otherwise—for its beauties to develop to their fullest extent. Along the road-sides we noticed from the train which took us back to Turin fields of Indian Corn, Millet (*Panicum miliaceum*) and *Erigeron Canadense*, a yard and a half and more in height, occurring as a weed amongst the lower-growing crops. This New World weed, now spread over the whole of Europe, was accidentally introduced into Germany, about half a century ago, in a stuffed bird. *George Nicholson.*

Kew.

Cultural Department.

Notes on Begonias.

DURING the past summer, with its storms and excessive rainfall, which ruined so many ordinary bedding plants and shortened the bloom of all but the most sturdy flowers, one could not but admire the hybrid Tuberous Begonias, which reveled in the abundant moisture and from early July till now have ever shown fullness of bloom which rain-storms seemed only to improve. A wet period which ruined Geraniums and other soft plants left the Begonias in renewed vigor and full flower. The improved hybrids which we now have are the product of many species and selections from various crosses, so that it cannot be said that all seedlings and plants are equally adapted to out-door culture; but with some care one can select such as will prove capital out-door plants, which, planted in proper position, cannot fail to prove satisfactory, at least in this latitude. The proper position seems to be one which receives sunlight only a portion, say an hour or two, of each day. The soil should be light, rich and perfectly drained. The most satisfactory kinds for such a position are the single ones, and care should be taken to select those of a sturdy and erect habit. The double varieties are of a much more slender habit, and, while not as showy in the borders, they have a grace of their own and are well adapted to out-door culture. Good drainage is of first importance, for stagnant moisture will cause a wholesale rotting of corms and loss of plants. Otherwise there seems no difficulty connected with their culture, though an occasional stem will be attacked in close weather by some parasite.

Like all free flowering, fast growing plants, these, to be well grown, require copious supplies of liquid manure. It is, perhaps, needless to say that hybrid Tuberous Begonias range in color from pure white, through most delicate pinks and salmons, to the clearest scarlets and reds of innumerable shades, and yellows from faintest primrose to clear gold, and are very free from shades of magentas and "blue-reds." In form they range from the single four-petaled flowers, which, in perfection, should make an almost perfect circle, to the fullest double. A stock is readily procured, as they grow rapidly and easily from seed; cuttings strike quickly and corms may be divided to single eyes. It is well in forming a collection to secure at least a few named kinds; a postal note to one of the leading French houses will bring a collection of good named ones (though not the very latest productions) at the cost of ordinary "rogues" or culls here. These superior kinds will furnish abundant seed for future cultivation and better than can be otherwise obtained; for, after trying seed from the most trustworthy dealers, one finds it difficult to believe that the best is sent out.

The cultivation from seed is of the simplest. Scatter it as thinly as possible over some light earth, not too moist, and cover the pan or pot with a glass; over the glass lay paper to exclude light, and keep in a moderate temperature. Do not cover the seed with earth. The pan should not be allowed to dry out, and, when necessary, it must be moistened by dipping it in water, deferring this, if possible, to nearly the time of germination, which will be in about a fortnight. Begonia seeds are so extremely small that the point of a penknife will hold several hundred. The seedlings are not at all "miffy," but are rather tedious to handle, as it is usual to pick them out while so small that they must be handled with a moistened camel's-hair brush, and a smooth ivory point as a dibber.

They bloom while small, and seed sown in January will begin to come into bloom in June, and, perhaps, even earlier. A collection of Tuberous Begonias is incomplete without some of the species, among which there is a wide diversity, both in foliage and flower. To mention only a few, *B. Martiana*, *B. racemiflora*, *B. grandiflora*, and *B. diversiflora*, old introductions, are very interesting and distinct, with lovely flowers (the last named being a rose color and the others an opaque pink), on short axillary peduncles. *B. Natalensis* is an interesting and distinct species, with small pointed leaves of a light metallic green, red stems, and profuse, small, four-petaled flowers, of a peculiar burnt-orange shade. The habit of the plant is somewhat suggestive of *B. Weltoniensis*. *B. geranioides*, a new species, also from Natal, is interesting from the resemblance of foliage to the Geranium, but its culture has not been successful with me.

Of the later blooming Tuberous Begonias, *B. octopetala* is well known as a sturdy late flowerer, and Lemoine has crossed this with some of the more showy species in the endeavor to improve the flowers and furnish bloom after the ordinary hybrids have passed out of bloom. The new cross has foliage more pointed, but showing clearly the Octopetala parentage. The variety Anemone is but just showing color with me, while the others are but giving indications of flowering. I hope to report later as to this interesting cross.

B. Scharffiana, a new introduction from Brazil, is a fibrous rooted kind, and in a young state seems very promising. The leaves are thick, covered with hairs on both sides, deep green above and red beneath. As the flowers, which are white, are said to be of good size, it will no doubt be an addition to the flowering varieties. Plant fanciers, who are fond of collecting, will find in Begonias a wide field, as there are said to be about four hundred species, with innumerable hybrids, and from the little *B. Imperialis*, with its leaves of embossed velvet, to the giant Rubra, there is a wonderful diversity of size, form, foliage and flower.

Mr. Thorpe has lately, in GARDEN AND FOREST, given a list of some good fibrous rooted kinds, while the raisers of Rex varieties bring forward every season wonderful new varieties to please those who fancy variegated foliage. *J. N. Gerard.*

Elizabeth, N. J.

Pandanus.

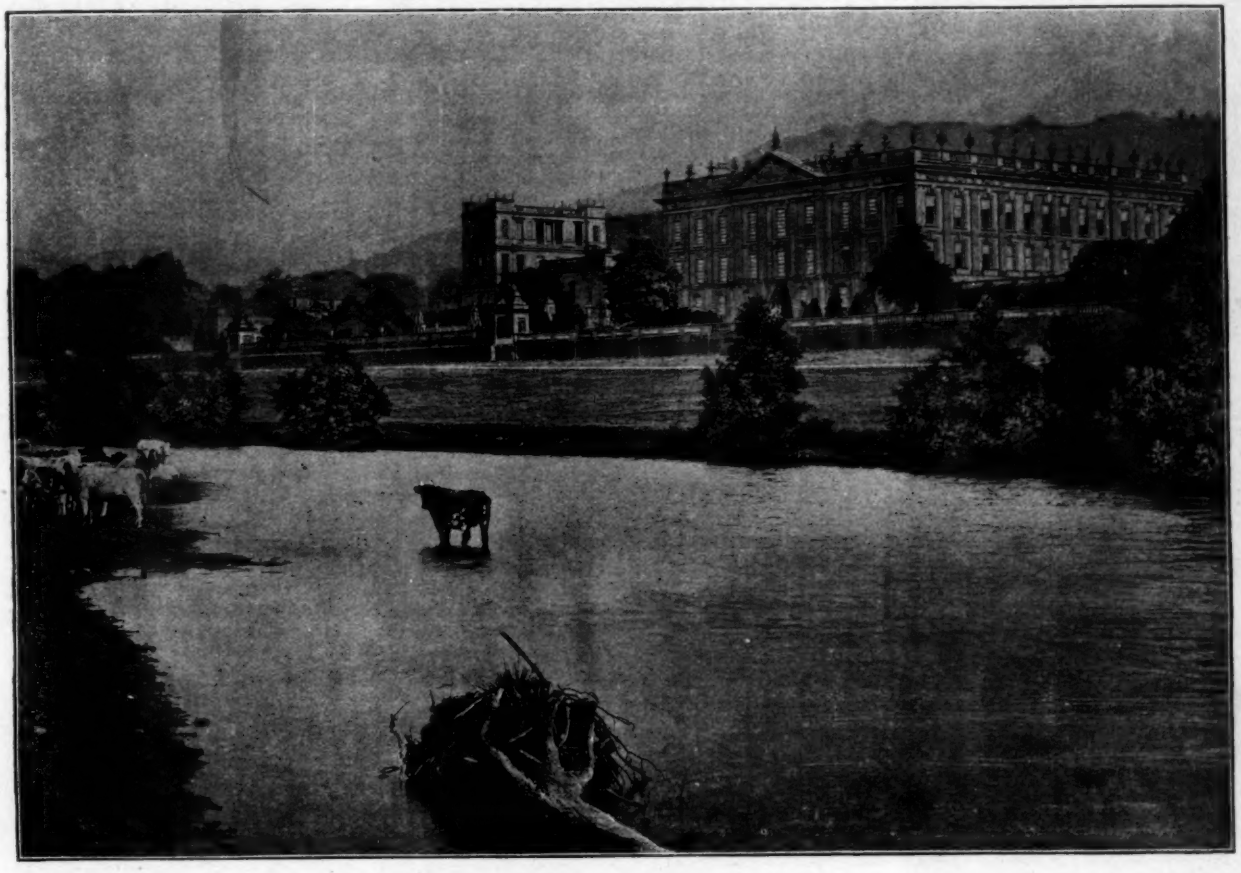
AMONG the various members of this interesting genus are found some of the most useful foliage plants for decorative purposes in general cultivation, and for this purpose some of the species are grown by thousands annually by commercial florists. Being of easy cultivation in most instances, and especially so in the case of the two most useful sorts, *P. Veitchii* and *P. utilis* (if a few reasonable conditions are observed), they have become very well known and appreciated. Though most species of Pandanus are natives of the South Sea Islands, many of them may be grown in a moderate temperature, say from 55° to 60°, and, in fact, when grown at this temperature, that is, under cool treatment, the plants are found to be in much better condition to bear exposure to changes of atmosphere such as are unavoidable when they are moved about for decorating purposes.

The best known representatives of the Screw-Pines, as the Pandanus family is frequently called, from the spiral arrangement of the leaves about the stem, are *P. utilis* and *P. Veitchii*, the first named being a native of Madagascar, and long known in cultivation, and the latter of more recent introduction, having been one of the many fine plants brought into horticultural use by the late John Gould Veitch.

As is well known, *Pandanus utilis* is readily propagated from seeds, which have become almost a staple article among the larger seedsmen of late years, and when the seeds are received in good condition they will come up in from six weeks to two months from the time of planting if strong bottom heat is given. These seeds, of a peculiar angular shape and from one to two inches in length, are compound, producing several plants from each; and there are sometimes seven or eight shoots, which may be easily separated from the seed with a sharp knife. They should be potted off in two and one-half or three-inch pots, as the size of the plants may require, after which they should be shaded for several days, until they become established. The first few weeks after the seedlings are potted off is perhaps the most critical time for them, because if kept too damp or in too close an atmosphere many of them will rot off.

After this period the most necessary points in their cultivation are to keep them potted on, so that the lower foliage does not suffer from starving, and to place them in a light house, only slightly shaded in midsummer, giving them space enough to develop their leaves, for when crowded they quickly become weak and drawn.

Pandanus Veitchii, when well grown, is undoubtedly the finest of the genus, and can be managed in the same way as *P. utilis*, though it is possible that *P. Veitchii* will stand more abuse in regard to over-watering than *P. utilis*. Either may easily be injured in this way during the winter. *P. Veitchii* is only propagated by cuttings, which will root at almost any season if given a reasonable amount of care. They are best separated from the parent plant with a small portion of the hard wood attached, so as to form a heel for the cutting. Plenty of pot room and light should be given to this plant, as, when well colored, it makes one of the most effective specimens for exhibition purposes.



Chatsworth.—See page 508.

P. candelabrum, perhaps better known as *P. Javanicus*, var., is another handsome variegated variety of rapid growth, but from its branching habit it makes a less shapely plant than the preceding. It is also propagated from cuttings in the same manner as *P. Veitchii*, and is of easy cultivation.

Among the species with plain green foliage, perhaps *P. reflexus* is the most notable, though rather an unpleasant plant to handle, the long, pendulous leaves being reflexed or recurved to such a degree as to almost hide the pot of a large specimen. Besides this, it is the best armed species of the genus, the spines being very numerous and strong, both on the edges of the leaves and on the under surface of the midrib.

A pretty species of dwarf habit is *P. graminifolius*, a native of Tenasserim, and having narrow, grassy leaves of dark green, edged with small, white spines. It is of branching habit of

growth, and is useful for dinner-table decoration or for small ferneries.

P. heterocarpus, or *ornatus*, is a highly ornamental species from the Philippine Islands, where it grows to a large size. It is a vigorous looking plant, with broad, shining green leaves, which attain a length of five to six feet. It makes a fine specimen where space can be spared to develop it. It will be found to do best in a stove temperature.

The soil best suited for the Pandanus is a rather light loam with a fair proportion of sand and some well rotted manure. The pots should be well drained, so that the soil shall not at any time become sodden. With ordinary care in watering during the winter, the successful cultivation of the plants is not difficult. *W. H. Taplin.*

Holmesburg, Pa.

The Guava in Florida.

GUAVAS are seldom, if ever, seen in our northern markets in their natural state, although guava jelly is a very common northern luxury. In south Florida they are the peaches of the region, and are grown with but little cultivation. The fruits are very healthful, and when the taste for them is once acquired they are relished as much as peaches, and are prepared for the table in the form of jellies, jams, pies, and served raw with cream. Little attention has been given to the manufacture of guava jelly for market in Florida, but it is confidently believed that it could be made immensely profitable in the southern counties.

Aside from their delicious fruit, the Guava bushes are of value for their ornamental qualities, with their evergreen leaves, polished stem and pure white flowers. The plants attain the height of small trees, averaging from fifteen to twenty feet in their native country (Tropical America). They bear short-stalked, egg-shaped or oblong leaves, with strongly marked veins covered with a soft down. The flowers are borne on axillary stalks, and the fruits vary very much in size, shape and color, numerous forms and varieties being cultivated. Cattley's Guava is the best kind for south Florida, as it is more hardy than any other. The fruits are pear-shaped and of a purple or claret color, and somewhat smaller than the common guava, though more prolific. The fruits begin to ripen in June or early in July, when not disturbed by cold, and continue blooming and bearing without interruption for months.

The soil for the Guava should be moist and rich; and the plants should be copiously watered in dry weather. It is better, in Florida, to train the plants to bush form until the roots get established, which will require several years. They should be protected from occasional cold periods. If the soil is kept rich and moist there will be a crop of fruit the latter part of summer, even though the stems are nipped in the winter.

The fruit is of much too perishable a nature to allow shipment to any great distance in its natural state, and for that reason very little attention has been given to the cultivation of the plants in Florida. A great deal of the low soil in the southern counties is well adapted to the cultivation of this fruit, and at present it cannot be utilized for any other purpose. Land which can be put into first-class condition for the Guava by a little drainage may be had for a few dollars per acre. Low hummock land is especially fitted for the Guava plants. In Monroe, Manatee and De Soto Counties there are several groves of these trees, which annually produce enough fruit for the manufacture of a great quantity of jam and jelly.

The Guava takes its name from the Mexican *Guayaba*, and was probably brought to Florida either from Mexico or the West Indies. The white Guava (*Pisidium Guayava*, var. *pyriferum*) is sometimes found here, but it is very rare. The fruits are pear-shaped, about the size of a hen's egg, covered with a thin, bright yellow or whitish skin filled with soft pulp. *P. Guayava* is the most common species and it produces most of the Guava fruit. The trees average from fifteen to twenty feet in height, and the fruits vary very much in size.

P. Guayava, var. *pomiferum*, is sometimes called the red Guava and produces a large globular or apple-shaped fruit. The pulp is of a dark hue and not so well flavored as the former. It is seldom eaten except when manufactured into jelly or jam.

A few plants of *Pisidium Cattleyanum* make an attractive addition to the shrubbery around the house. The flavor of the fruit is an agreeable acid-sweet, almost like that of the strawberry. The trees produce abundant fruit of a large, spherical shape, and of a fine deep claret color. The rind is pitted, and the pulp is soft and fleshy, purplish near the skin, but nearly white in the centre. *George E. Walsh.*

New York.

Orchid Notes.

Preparation for Winter.—To insure a good display of bloom from the present time until March and April next, some Orchids will need more than usual attention. During this period a number of the deciduous Dendrobiums contribute their lovely flowers. They have now completed their new growths, and should be removed to a temperature much cooler and drier, with an abundance of air to ripen and strengthen them before they commence to bloom. Avoid keeping the atmosphere moist, or new growth will again start, and this means few or no flowers. They should occupy this position until the nodes show signs of swelling, when they may be returned to their former situation until the flowers are well expanded, and these will remain several weeks in good condition if brought again into the coolest end of the house. *Dendrobium Wardianum, D. crassinode, D. Falconerii, D. Leechianum, D. Ainsworthii* and *D. nobile* are plants which succeed under this treatment. There are also among the Cattleyas some handsome winter-blooming species. The most popular among them is undoubtedly the beautiful *Cattleya Trianæ*, an Orchid now largely grown, both for private and commercial purposes, on account of the ease with which it can be flowered, its free habit of growth, and the great variation of its blossoms, which are from the purest white to a fine rosy-purple. The plants of this species have just completed their growth, and in a month hence will begin to enrich our houses with their flowers. From the present time less water should be given until the buds make their appearance in the sheaths, when the supply should be increased. Three to five flowers are produced on a stem, and when cut they keep several days in good condition, and can be had continuously until March and April if a sufficient number of plants are grown. This Cattleya is followed by *C. Percivaliana*, together with *C. Mossiæ* and its varieties, all very showy plants, and requiring similar treatment.

A few very showy Lælias lend to the display at this season, and among them are the beautiful *L. autumnalis, L. anceps, L. albida* and others, which all do well if exposed to the light until the flowers are well developed, which thus attain greater size and a richer color. In many collections we find Cypripediums pushing up their spikes, and the old favorite, *C. insigne*, is crowded with buds, as are *C. villosum* and *C. Harrisianum*, though not so abundantly. These varieties are now largely grown for cutting, because the flowers are stout and durable, and remain several weeks in good condition.

Comparatively few Oncidiums appear at this season, *O. tigrinum* and *O. splendidum* being, perhaps, the most prominent among them. Both are bright yellow flowering species. *O. varicosum* is also a showy species, with blossoms produced a little earlier than the two varieties above noted. Calanthes, when well grown, are among our finest Orchids. Most of them have completed growth, and will now require less water until the spikes present themselves from the base of the bulbs. Where Phalænopsis are grown, they will be found pushing their spikes rapidly. They should be protected from drip as well as direct sunlight; and should be carefully examined for slugs, which do them much harm. *Cælogyne cristata* will soon develop its lovely white blossoms. Plants with newly-made bulbs will not need much water until the spikes are seen breaking from their base. This is a charming Orchid both for cutting and decorative purposes. *A. Dimmock.*

Summit, N. J.

Oncidium Lanceanum.—This very distinct and handsome species was first discovered on the banks of the Surinam River, in Dutch Guiana, in 1834, by Mr. John Henry Lance, to whom it was dedicated by Dr. Lindley, who, in his *Folia Orchidacea*, remarks that "this beautiful plant seems confined to Surinam." Such, however, is not the case; for it has been imported of late years from near the Roraima Mountains in British Guiana, and also from northern Brazil, near Manaos, a town situate at the juncture of the Rio Negro with the waters of the mighty Amazon. There are several plants now in flower here, and they form one of the chief attractions of the Orchid-houses. *O. Lanceanum*, like *O. bicallosum, O. luridum, O. Cavendishianum* and a few others, is remarkable for the absence of pseudo-bulbs. The broadly oblong-acute, leathery leaves, which spring from knotty rhizomes, are a foot or more long, four to six inches broad, and of a dull green, covered with dark spots, and occasionally suffused with a bronzy tint. At one time these spots were supposed to indicate ill-health, but experience has proved their appearance to be quite natural. The stout, slightly-branched erect peduncle is produced a little below the base of the leaf, and attains a length of one or two feet, bearing, in many cases, from twelve to twenty-four

large flowers, which emit a delicious odor akin to that of vanilla or of garden Pinks. The sepals and petals, with wavy margins, are yellow, tinged with green, the upper concave sepal and the two petals being covered with large, roundish, purple-brown blotches, which become confluent at the base, while the two lower elliptic-obtuse sepals are nearly purple-brown throughout, having a streak of yellow appearing here and there. The lip presents a striking contrast to the other segments in its color, which is a beautiful rose-purple on the broad, flattish anterior lobe, passing along a narrow isthmus into deep mauve-purple at the base, where there are three projecting plates or crests, and a triangular auricle on each side, while the short, thick column is rendered conspicuous by its roundish, incurved fleshy wings of a bright, shining purple.

There are several forms of this fine species in cultivation, but the most distinct are Superbum and Louvrexianum, specimens of which are now also in flower. The former is distinguished by having larger and more brilliantly colored flowers than is usual in the type, but this is probably owing to its geographical distribution, as it is found only in the region of the Rio Negro. The latter variety, however, which is named in compliment to M. D. Massange de Louvrex, of Marche, Belgium, is remarkably distinct, and may be known at once by the pure white apical half of the lip, the deep purple basal portion of which appears to be thus rendered more intense by the contrast.

For many years *Oncidium Lanceanum* was a difficult plant to grow well, but now that cultivators know its requirements, and the conditions under which it grows in a wild state, it is met with in most collections, as it is found to grow just as easily as its congeners. It might be mentioned that in the Rio Negro region, during July and August, which is the dry season, there is scarcely any rain whatever, and the thermometer reaches ninety-five degrees Fahr. in the shade at two o'clock every afternoon, and does not sink below seventy-five degrees Fahr. at night. Taking this into consideration, and also the fact that the plants receive plenty of moisture by evaporation from the rivers along whose banks they grow, and also by the tremendous torrents of rain at certain times of the year, it is evident that they must be cultivated in a warm and moist atmosphere, with a temperature of seventy to eighty degrees Fahr. during the period of growth, and at the same time giving abundance of water. When in flower less water is required, and a slightly cooler atmosphere will tend to keep the flowers in good condition for several weeks. When the flowering season is quite over the plants should be placed in a cooler house, where they may enjoy a good rest for a couple of months, but they must receive a little water at intervals to prevent the growths from shriveling, as the plants have no pseudo-bulbs to retain nourishment. Well drained baskets, with a compost of rough, fibrous peat and moss, with charcoal mixed, is very suitable, as the baskets can be hung from the roof, thus allowing the plants plenty of light.

St. Albans, Eng. *John Weathers.*

The Hardy-Plant Border.—It is a common error to suppose that hardy herbaceous plants need little or no care. Hardy plants require as much thought and attention as green-house plants. Many well recommended and ambitious young gardeners have little experience with hardy plants, and thus the work of planting and cultivating them is too often left to unskilled laborers. Proper preparation of ground, careful selection, judicious grouping and association of color for definite purposes, frequent division and weeding out of worthless kinds, and the propagation of the best species and varieties must always be kept in mind, and all this demands personal interest and supervision.

In addition to the propagation of proved varieties, the enterprising gardener will, every year, test a few new kinds in nursery beds to ascertain their hardiness and floral merits before they are planted permanently or rejected. Where, as is frequently the case, the owner is away from home during the warm months of July and August, special attention should be paid to the grouping of certain kinds for spring and fall displays.

The fall of the year is the best time to prepare the ground, and if the soil is not already rich and deep it should be made so. Many kinds are best planted at this season, and the others should be planted as early in spring as possible. The taller growing kinds should be placed so as not to exclude from view, and shut off light and air from the smaller kinds. If any choice varieties do not seem to make much progress, have them housed or stored in a cool frame for the winter, and take up desirable kinds for propagation during the winter or early spring. Cover the borders with leaves, if obtainable, and just lay enough manure on them to prevent the wind from carrying them away. Or light manure will suffice when leaves are not to be had. It is better to leave the surface of the soil rather rough, or broken up, than smooth and finely raked. It takes rain without shedding, holds the moisture better, and is not so liable to be parched by the sun after a heavy rain.

Wellesley, Mass. *T. D. Hatfield.*

Primula cortusoides Sieboldii is one of the brightest colored species, and in this respect stands unrivaled among hardy Primroses. Our first acquaintance with this plant was made when it was grown in pots for decorating the conservatory, and very suitable it is for that purpose, but now that there is no question of its hardiness, and plants are easily procured, one can muster up courage enough to plant them out in the open ground. Care should be taken when selecting a place for the plants, to choose a half shady position where the rays of the sun during the hottest part of the day may not strike them, as in this climate few Primulas can endure complete exposure to the sun. It is well to bear in mind also that this variety is seen to the best advantage when associated with others of the genus, such as Primroses, Polyanthus and Auriculas, and in this way *P. Sieboldii* shines conspicuously bright, and its large flowers of deep rose, over an inch across, borne on many flowered stems just above the foliage, cannot be surpassed for their pleasing effect in early spring. The foliage dies off completely in fall, and this is the proper time to transplant. It should be borne in mind that this species is strictly surface rooting, consequently the roots should be only slightly covered with soil, and should then receive a top dressing of well decomposed manure. This may be removed in spring, just as the plants begin to show signs of starting, as all the nutriment will have been appropriated by the soil; and as a protection the manure is no longer needed. With us Siebold's Primrose bears seed freely, and if this is sown when ripe it soon germinates, and in twelve months makes flowering plants. We have now a fine collection for flowering next spring. Florists have already been at work on this plant, but the progress made toward improved varieties has not been remarkable. The type still holds its own against all the seedling sorts, although some of these are pretty enough and well worth growing. Amongst them are two white varieties, Intermedia Alba and Grandiflora Alba. These have the merit of being very distinct. Amongst others we have tried are Ruby, Laciniata, Lilacina, Clarkæflora and Purple Queen, the varietal names of which are sufficiently descriptive. They are the best of some twelve or more varieties usually seen in trade lists.

Passaic, N. J. *E. O. Orpet.*

A contrivance for watering lawns is being largely introduced into English gardens where there is a system of water-pipes. It consists of three or four lengths of wrought iron tubing about one and a half inches in diameter, coupled by short lengths of flexible leather or rubber hose. The tubes are pierced at short intervals with wedge-shaped holes large enough to emit a wide-spreading, fine spray. Each length of tube has a pair of small iron wheels attached, which revolve in all directions, so that the apparatus can be turned about with ease. These portable irrigators have this year been introduced into Kew Gardens by Mr. Nicholson, the Curator, and have given great satisfaction, so that the lawns at Kew, which generally brown early in the season on the hungry, gravelly substratum, have been kept beautifully green throughout the dry summer. These irrigators are likely to become generally used in parks and gardens, as a firm of hydraulic engineers in London is manufacturing them on the same principle, calling them the Kew Gardens Irrigator. The apparatus is by no means new, having been in use many years in Paris, but, perhaps, it is not known to the owners of summer-browned lawns in America. There are two or three patterns (one with socket and ball fixings), but the one described above works most satisfactorily. Besides being used for lawn-irrigation at Kew, Mr. Nicholson has turned it to account in watering specimen trees, which have been greatly benefited thereby, especially evergreens and conifers, which, as a rule, do not get nearly so much moisture as they require even in wet seasons. Fortunately, a rational system of tree-cultivation is now practiced at Kew. Formerly, when once a tree was planted, it rarely received further attention, but now they are periodically top dressed with rich soil and thoroughly watered by the irrigators. The beneficial effects of this treatment of the old trees is seen in a short time by the renewed vigor of branch and leaf. It is hoped that this example, set in a public garden, will be followed in private gardens, where trees so generally suffer from neglect.

Kew. *G.*

The American Forestry Association.

The Annual Meeting at Philadelphia.

THE American Forestry Congress held its eighth annual meeting in Philadelphia last week, and changed its name. It is now the American Forestry Association. This is an improvement. The Pennsylvania Forestry Association had its fourth annual meeting at the same time and place. The joint sessions were held in Horticultural Hall, and began on Tuesday evening, continuing till Friday afternoon. Hon. James A. Beaver, Governor of Pennsylvania, and the President of the Association, presided in a vital and stimulating manner, which did much to promote the systematic transaction of business. He was sometimes relieved by Hon. H. G. Joly, of Quebec, and Dr. Charles Mohr, of Mobile. Many interesting papers on forestry subjects were presented—more, indeed, than could be read. At least sixteen states were represented by delegates appointed by their Governors, as was also the province of Quebec. The Board of Education of the city of Cincinnati sent a representative, and there were delegates from some of the agricultural organizations of the country. The Pennsylvania Forestry Association and the people of Philadelphia entertained their visitors with a most engaging and satisfactory hospitality. All conditions were favorable, and the meeting was universally regarded as the best one ever held by the national organization.

The work began on Tuesday evening with an address by Hon. Carl Schurz on the general subject of the importance of forests, and of proper forest management, to civilization and national welfare. It was an interesting and impressive presentation of the facts of the condition and treatment of the forests on our public domain, with illustrations from the speaker's experience while he was Secretary of the Interior. He urged the necessity of the permanent maintenance of forest conditions in mountain regions as indispensable to the permanent and useful flow of the streams having their sources in them. After referring to the important economic considerations which should be recognized in national forest management, he spoke eloquently of the obligation of the people of this country to regard themselves as trustees to whom are committed interests of stupendous magnitude affecting the destiny of millions of human beings through all coming time.

The most important action of the meeting was the adoption of the resolutions introduced by Mr. B. E. Fernow, Chief of the Forestry Division of the Department of Agriculture, by which the association voted to petition the Senate and House of Representatives of the United States to pass an act withdrawing from sale the forest lands of the public domain until a Commission, to be appointed by the President, shall have made the necessary examination and reported to Congress what part of these lands should be kept permanently in forest. The resolutions also ask that the army shall be employed to protect the forests on the public lands from spoliation and destruction, if this becomes necessary, until the Commission shall have reported a plan for a permanent system of national forest management.

This is substantially the course that has been advocated by Garden and Forest, and which has been approved by a large proportion of the leading journals of the country. The readiness with which the American Forestry Association follows Mr. Fernow's lead in this important movement is an encouraging indication of enlightened and practical judgment, and all serious-minded and patriotic Americans should unite in making an effective presentation of the matter to Congress and to the President, in order that effective and speedy action may be secured. Unless this is done, it will soon be too late to prevent the permanent ruin of some of the fairest and most important portions of our national heritage.

A FORCIBLE SPEECH.

The discussion provoked by these resolutions was one of the most interesting and useful features of the meeting. The proposed plan was opposed by Mr. Lemon Thompson, of Albany, New York, on the ground that it would be more in accordance with the spirit of our institutions and with our national practice hitherto, to sell all such forest lands to individuals who wish to buy them, and also for the reason that, as a matter of fact, the forests would be better protected under individual ownership than if managed by politicians and office-holders, appointed by the Government. Mr. Thompson was often interrupted, but held his ground sturdily until he had said what he wished. Effective replies were made by Mr. Fernow, by Mr. Herbert Welsh, of Philadelphia, Colonel Edgar T. Ensign, Forest Commissioner of Colorado, and others. But the most thorough and convincing speech of this discussion, and, indeed, of the whole meeting, was made by Mr. Richard J. Hinton. Mr. Hinton has recently attended the Senate Committee on Irrigation through the whole course of its investigations, traveling nearly fifteen thousand miles through the mountainous and arid regions of the west for this purpose. During the course of his eventful life Mr. Hinton has more than once happened to be at hand at the right time and place for action, but he probably has not often done a better quarter of an hour's work than in the forcible address in which he advocated the passage of these resolutions. He showed very clearly how impossible it is that individual citizens, or even the separate states, should deal successfully with the problems connected with the management and course of rivers which are thousands of miles in length, and which flow through the territory of a dozen different states. His arraignment of the criminal and stupid indifference which would wantonly exhaust in the life of a single generation the possibilities of our magnificent national inheritance "through a thousand onward years," and his appeal to the American people to act wisely while there is yet time for effective action, was a passage of remarkable beauty and power.

VARIOUS PAPERS.

In his address Mr. Schurz said: "The destruction of the forests of the country will be the murder of its future and its progress. It seems to me that wherever the forests cover the head-waters of great rivers the Government should keep possession. If the possession is gone, then regain it. Look at the valleys of the Hudson and Mohawk—already the flow of these rivers is diminished from twenty to thirty per cent. If the destruction of the forests continues the United States will be as completely stripped as Asia Minor."

Mr. Fernow, Chief of the Forestry Division, read a carefully prepared paper on "Methods of Forestry Reform." It is the one which he read to the American Association for the Advancement of Science a few weeks ago. We quote his observations regarding

STATE FOREST COMMISSIONERS.

"A state which is administering its trust for the people, a government by the people, who believe in education as the best means of advancing their interests, will not object to providing for the education of their agents, which alone fits them to exercise their duties of governing intelligently. What, then, can be of more pressing need in each state than a forest commissioner, whose duty it shall be to collect the facts upon which the forest legislation for his state is to proceed; who will represent the forest interests of the state; who, in gathering information in regard to the distribution, location, condition of forest areas, the rate and method of their decrease or increase, the relations of supply and demand of forest products, and information in regard to the relation of water and soil conditions in his state to forest areas, can also act as an educator of the people with reference to their forestry interests and as the officer in charge of the observance of forestry laws and forest police; and who would manage state (or school) forest lands where such may exist? Whatever legislation we may ask for, the appointment of such an officer is almost an unavoidable condition to insure the enforcement of forestry laws, while the value of his labors as a bureau of information can hardly be exaggerated or their necessity doubted.

"The same agencies may be employed by the government, to produce an economic reform, that are open to private

endeavor, with the one additional agency of compulsion. Education, persuasion and compulsion are all at the command of government. How are they to be employed? To what extent can they be expected each to do its share in producing the desired result?"

Dr. H. Nicholas Jarchow, of this city, read a paper on "Forestry Legislation in New York," in which he said:

"For the state of New York there is an important reason for a systematic business management of the state forests. Systematic forestry can be practiced only to advantage in large wooded areas. The farmer possessing from 100 to 200 acres will, in treating his wood plot, be led only by his personal wants and desires; the teachings of systematic forestry are to him of no avail, except that he may be induced to adopt a culture with a certain rotation. But it is quite different with the large wooded areas, which cannot be used for any other purpose except for raising forest trees."

GEORGIA PINE.

Mr. S. G. McLendon, of Thomasville, Georgia, read a brief, interesting and valuable paper on Georgia Pine, from which we should be glad to quote at greater length, but have space only for this:

"The practical question which invites solution at the hands of practical statesmanship is the proper method of nursing to ripeness the young trees not consumed, which, as I have said, represent from seventy to seventy-five per cent. of the actual number of trees on each acre. These are, many of them, turpentined at entirely too young an age, and almost literally bled to death. The great enemy of the forest, aside from the axe, is fire—fire which comes in the wake of the turpentiner and the one which precedes him. A most thoughtless, and I might justly say insane practice, prevails in the pine region, of burning off the woods in early spring, in order that a small lot of worthless cattle may get an early bite of grass. These burnings impoverish the soil by destroying the vegetable matter that would, if left untouched, enrich it, and also destroy the young Pines that spring up from seed. How serious this damage is the future will fully realize. What the best policy to husband this wasting wealth will be I do not undertake to say, but if, without too serious an invasion of the domain of private right, it could be made penal to box trees less than twelve inches in diameter, and penal to burn the woods or set forest fires, I think a decided advance would be made in the direction of preserving our pine.

"The mill man thins out, the turpentine man destroys. The one cuts down only large trees, not over thirty per cent., while the other boxes not less than seventy per cent. Behind the first the forest fire is hurtful, behind the other it is destructive. In the one case it is simple assault and battery, in the other it is murder."

Mr. E. E. Russell Tratman, of Brooklyn, New York, read a valuable paper on "Economy in the Consumption of Railway Timber," of which the two principal suggestions were the use of other materials as substitutes for wood in constructing and operating railways, and the application of means for increasing the durability of the timber used for railroad purposes.

Colonel Edgar T. Ensign, Forest Commissioner of the state of Colorado, had a good paper on "Government Forest Preserves in the West," which was illustrated by large maps on the stage. He said the experience of the Commission, of which he is the head, had made it plain that national control of mountain forest regions, in which large streams used in irrigation have their sources, is a necessity, and that adequate management by the individual states is impracticable. Few men in the country have more knowledge of the practical problems connected with the functions of mountain forests than Colonel Ensign.

Mr. N. H. Egleston, the Recording Secretary of the Association, offered a series of resolutions expressing the sense of the meeting regarding the work of the agricultural colleges of the country, to the effect that they "should regard it as one of their most manifest duties to give the subject of forestry a prominent place in their curriculums, and that every experiment station should engage in investigating and making experiments in those branches of forestry which have special importance in the localities in which they are situated, or which are of general interest in their relations to agriculture and the arts." They were unanimously adopted.

Dr. J. M. Anders, of Philadelphia, read an interesting paper on "The Removal of Forests a Factor in the Causation of Floods."

Hon. Adolph Leué, Secretary of the Ohio State Forestry Bureau, read a carefully prepared and thoughtful paper on "Forestal Schools."

Professor J. T. Rothrock, of the University of Pennsylvania, delivered an evening lecture on "The Forest Regions of North America," with stereopticon illustrations. These were remarkably beautiful and accurate, and the lecture was one of the most interesting and instructive features of the three days' meeting.

Professor Albert N. Prentiss, of Cornell University, read a paper on "The Hemlock," which we should like to print. He showed that the rate of growth of this tree is remarkably slow, and that it is being rapidly exterminated, as it is everywhere cut off for all the uses for which its timber is so well adapted, while no effort is made to protect the young growth and thus provide for a succession of crops of this invaluable tree.

Miss Grace Anna Lewis read a paper, which attracted much attention, on "The Oaks of Delaware County, Pennsylvania." It was illustrated by the exhibition of many beautiful paintings of the leaves and fruit of the trees. These were by Miss Lewis' own hand.

Mr. B. G. Northrop read an interesting paper on "Arbor Day in Schools."

A curious and interesting incident of the last hours of the meeting was the introduction of a very brief resolution in favor of taking the duty off lumber. This was offered by Mr. J. D. W. French, of Massachusetts, one of the Vice-Presidents of the Association, who supported it in a few moderate and well chosen remarks. There was no other discussion of the subject. There was not much time, indeed, but what there was, was mostly employed in protesting against any discussion of the resolution, and even against its introduction. Last year at Atlanta it was thought that it would not do to introduce it. But the question of a duty on lumber is entirely legitimate in a forestry association.

We have not space to mention all of the papers. More had been prepared than could be read during the meeting, although most of the time was devoted to them, and not much was used in discussion.

THE PENNSYLVANIA FORESTRY ASSOCIATION.

The arrangements for the meeting were chiefly in the hands of the officers of the national organization who live in or near Philadelphia, of the officers of the Pennsylvania Forestry Association and of the local committees. They deserve much credit for the thorough preparation which anticipated every need of the occasion, and of all who were in attendance. The vigor and efficiency of the state organization is highly gratifying and encouraging.

Very appropriately, the opening and the close of the meeting were in the hands of the Philadelphia forestry people. On Tuesday evening the assemblage was called to order by Mr. John Birkinbine, of the state organization, editor of *Forest Leaves*. He introduced Mr. Burnet Landreth, the President of the Pennsylvania Association, who delivered a graceful and interesting address of welcome, in which he alluded to the establishment in Philadelphia of the first agricultural and horticultural societies, and to the work of the great botanists and dendrologists, who early made the city famous. In the absence of the President, Governor Beaver, the response to the address of welcome was made by the First Vice-President, Hon. H. G. Joly, of Quebec, Canada, who said it was not the wish of forestry reformers to protect the woods against the legitimate demands of the lumberman, or the need of forest products for the use of the people, but only against unwise and wasteful methods of appropriating such products. He added, that there is no real antagonism between lumbermen and the Forestry Association, and that they should work together in harmony for the preservation of the forests in order to maintain permanent sources of timber supply. All of Mr. Joly's speaking during the meeting was of a very thoughtful and substantial character.

The afternoon of the last day was devoted to tree planting in Philadelphia's great park. There was a large assemblage on the John Welsh Concourse, near Memorial Hall. Here again, as at the beginning, Mr. John Birkinbine directed the proceedings. Seven handsome and vigorous young Oak trees, grown from acorns from Bartram's Gardens, were planted. The trees were dedicated to John Bartram, Andrew F. Michaux, Dr. Franklin B. Hough, J. Francis Fisher, Alexander von Humboldt, Governor James A. Beaver and Judge Warren Higley; and brief and interesting addresses were delivered by Mr. Charles C. Binney, Mr. B. E. Fernow, Hon. H. G. Joly, Mr. Rodman Paul, Rev. Dr. J. P. Lundy, Professor B. G. Northrop, and Hon. John Peaslee.

A vote of thanks to the Park Commission closed the convention.

The officers for the coming year are: Hon. James A. Beaver, Governor of Pennsylvania, President; Hon. H. G. Joly,

Quebec, First Vice-President; Mr. N. H. Egleston, Washington, D. C., Recording Secretary; Mr. Charles C. Binney, Philadelphia, Corresponding Secretary; Dr. H. M. Fisher, Philadelphia, Treasurer.

Notes.

The Rev. Lyman Phelps writes from Sanford, Florida, of an Allamanda but two years old which covers a lattice twelve feet high and as many wide, and shows more than 500 flowers in bloom.

The twelfth semi-annual Fruit-growers' Convention of California will be held under the auspices of the State Board of Horticulture, in Fresno, commencing Tuesday, November 5th. Special attention will be given to discussions upon raisins and other dried fruits.

Mr. William Hamilton, Superintendent of Parks in Allegheny City—which until very recent years was an exceedingly smoky city—states that the Ginkgo tree thrives as well in that city and Pittsburgh as the Ailanthus. This means that the smoke and dust of the city do it no harm which can be detected.

Many different modes of keeping ripe grapes have been recommended and adopted, but the two great requirements for success, as noted in the *Country Gentleman*, are a continued low temperature, a few degrees above freezing, and well ripened fruit. Badly ripened, and poor, watery grapes will not keep long. Packed in dry or baked sawdust, they are excluded from air currents, and are thus easily kept till midwinter in a cold apartment. The *Agriculturist* says that if wilted and then buried in stone jars three or four feet below the surface, they will come out with stems green and fruit plump and bright.

The fashion of celebrating Arbor Day has traveled as far as Australia, at least. At Adelaide the initiation of Arbor Day was signalized by the planting of 800 trees upon the Park Lands by the pupils of the schools. Many private persons also planted trees on that day in various parts of the colony, and no less than 35,000 trees had been applied for at the Forest Office on the day before Arbor Day. The City and Suburban Schools Arbor Committee forwarded a recommendation to the Ministry to provide for the proclamation of an annual holiday, to be called Arbor Day, when every colonist of South Australia should be invited to plant at least one tree, and they suggested that the first Friday in August each year would probably be the most suitable day in that region.

Our experiment stations have made a good many tests with seed-potatoes, using entire tubers, small and large, and a certain number of eyes from different ends of the potato; but the experiments have given no uniform results. The *Gardeners' Chronicle*, in the last number, sums up a discussion of the general subject as follows: "The gist of the matter seems to be that whole sets should be planted, and these should be denuded of all eyes but a few of those at the crown; and the plants allowed ample space, so that the roots may have a large feeding area, and then the potato crop will be far greater than we are accustomed to have, and the number of sets required fewer." We are inclined to think that in this country potatoes would yield more to the acre if planted more thickly than usual.

Isotoma axillaris is an Australian perennial of the Lobelia Family, growing to a height of from six to twelve inches, with bright blue spreading flowers nearly an inch across. It was one of the early introductions from Australia, but of late years has been pushed aside, like many other Australian plants, by newer and therefore more fashionable subjects; and it is now rarely seen outside a few old-fashioned gardens. The most attractive feature, nevertheless, this year, of the flower-garden at Dropmore, in England, was a bed entirely filled with this plant. Although a perennial, Isotoma flowers freely the first year from seed, and so may be treated best as an annual when it is intended for summer blooming. As it is a sun-loving and drought-loving plant, it might be expected to succeed in the United States even better than it does in England.

Ulmus umbraculifera is one of the most striking and interesting trees of recent introduction. It is a form of the Old World Elm (*U. campestris*), discovered in Persia a few years ago, and sent by a German gardener in the employ of the Shah to Mr. Louis Späth, of the Rixdorf nurseries, in Berlin, who has propagated it largely by grafting on the common Elm. The largest specimen in Mr. Späth's nursery is a tall standard, with a stem ten or twelve feet high, surmounted by a dense, compact and almost globular head twelve or fifteen feet across. The original tree in Persia is said to be large enough to shelter a regiment of soldiers under its wide-spreading branches. *Ulmus umbraculifera*, worked as a tall standard, has been planted in considerable numbers along some of the new streets in the suburbs of Berlin—a use for which its peculiar habit seems to adapt it.

The most beautiful flowers, this year, in the small pond devoted to the cultivation of aquatic plants in the gardens of the Trocadéro, in Paris, were two yellow-flowered Water Lilies, in the collection of M. Lagrange, nurseryman, at Oulins (Rhône). They were labeled *Nymphæa odorata sulphurea* and *N. Marliacea* (already noticed in Garden and Forest, vol. ii., p. 408). Both plants are hybrids, evidently between *N. tuberosa* and the Florida *N. flava*, but *N. Marliacea*, as it appeared in this collection, was far the handsomer and freer bloomer of the two. It is certainly one of the most beautiful of all the Nymphæas; and if it proves hardy here it will be a real acquisition to gardens. A striking plant in M. Lagrange's exhibit was a tall double-flowered Sagittaria, labeled *S. Japonica plena*. It is a form of the widely distributed *S. sagittæfolia* (var. *diversifolia*), from China, and one of the best aquatic plants of its class, with great clusters of pure white flowers, and bold, broad masses of foliage, sometimes more than three feet high. It may be expected to be hardy in the northern States.

At the recent meeting of the British Association at Newcastle, a report of a committee formed for the purpose of collecting information as to the disappearance of native plants from their local habitats was read. The attention of the committee had been in the main directed to the threatened extinction of rare plants, and the report also spoke of the injudicious action of botanists themselves and of botanical exchange clubs, as being potent factors in the changes which had taken place. The committee observed that the dealer and collector figured largely in the disappearance of Ferns, and in conclusion, suggested to natural history societies and field clubs the advisability of keeping careful guard over any rare plants to be found within their respective spheres of action. Canon Tristram referred to the disappearance of plants, and said that all these plants which they found disappearing could be procured by those who wished them from nurserymen, and the collectors who wished to grow them could get more readily from the dealer plants likely to survive and flourish than by collecting them themselves.

M. André, in a recent number of the *Revue Horticole*, calls attention to the value of *Bouvardia Humboldti* as a summer blooming bedding plant. This charming species, a native of Mexico and introduced in Europe as early as 1874, seems to be practically unknown in the gardens of this country, although in Paris, Tours and other French cities well grown plants in flower are now not infrequently found for sale in the flower-markets during the summer months. A large bed of these plants, furnished by M. Jean Puteaux, of Versailles, has been one of the most interesting and attractive features of the gardens of the Trocadéro during the past summer. The plants were short, stocky, and covered with their terminal racemes of long-tubed, deliciously fragrant, pure white flowers, which contrast pleasantly with the dark green foliage. M. André calls attention to the fact that the plants of this species will continue to produce their flowers during several months if they are copiously supplied with water, and if the flowers are removed as fast as they fade, that the development of seeds may be prevented.

President Horace Davis, of the University of California, recently received an inquiry from Algeria concerning experience on the Pacific coast with grasses for restraining drifting sands. As much of this kind of work has been done at Golden Gate Park, in San Francisco, the experience of Mr. John McLaren, the efficient superintendent of the park, was asked, and his statement has been forwarded to the distant applicant. Part of the information given by Mr. McLaren is quoted as follows in the *Pacific Rural Press*: "The grasses found most successful here are the Sea Bent grass (*Calamagrostis Arenaria*) and the Bermuda grass (*Cynodon dactylon*), both of which have been entirely successful in holding the loose sand. I would plant the Sea Bent in the most exposed places and the Bermuda on the protected slopes. We plant in rows one and one-half to two feet apart and one foot deep. Where practicable, the plow is used, dropping the roots in each alternate furrow. Where the dunes are too steep for plowing, pits are dug with the spade, and, after planting, the sand is trodden firmly with the foot. The plantations have to be examined after heavy wind-storms to replant any roots exposed by the wind. If seeds only can be procured, I would suggest that they be sown in nursery rows and the plants set out the following season." Of course, there are also many shrubs used, and the nursery at the park has propagated a vast number of the Leptospermum and other shrubs which have been found serviceable.